

average annual rainfall. Mr. Buchan contributes another paper "On the Temperature of the Soil compared with that of the Air," being a discussion of series of observations made twelve times daily in different parts of Scotland, at the instance of the Marquis of Tweeddale, president of the society. From the observations it is seen that the surface temperature of the soil is considerably colder than the air resting on it in winter, and considerably warmer in summer; and from the relations of the temperature of the soil to that of the air during changes of weather, some interesting results are drawn with reference to the influence of solar and terrestrial radiation on climate.—A brief notice of the winter climate of Malaga, detailed notes of the weather of the quarter, and tabulated returns from ninety-one stations, including several highly important stations in Iceland, Farö, and regions bordering on the Mediterranean, make up the number.

Journal of the Chemical Society, December 1871.—This number commences with a paper by Watson Smith, "On the Distillation of Wood," and although of considerable technical interest it does not present any new features.—A paper on Anthraquinic Acid follows, by W. H. Perkin. This is a substance which occurs in the artificial alizarin of commerce. Two distinct formulæ have already been assigned to this body by Drs. Schunck and Liebermann. This communication proves conclusively that these formulæ were wrong, and that in reality this acid is isomeric with alizarin, but unlike that body it possesses no tinctorial power.—Dr. Armstrong contributes a paper on the action of Nitric Acid on the Dichlorophenol Sulphuric Acids. The results obtained are very interesting, but seem to cast some doubt on the theoretical speculations of some German chemists on the constitution of those bodies.—The abstracts in this number occupy 100 pages, and comprise many papers of great value.—E. Baudiment has made an extensive series of experiments on the intimate action of substances which assist the decomposition of potassic chlorate and the disengagement of oxygen. Many bodies were tried, some of which, as cupric or manganic oxides, when heated with potassic chlorate, as is well known, yield oxygen very readily, in this case, when the temperature reaches a definite point, a sudden rise of 50° or 60° takes place with a tumultuous evolution of gas. The author has found that the decomposition of potassic chlorate is always accompanied with a disengagement of heat, so that this substance may be called an endothermic compound.

The Monthly Microscopical Journal, February 1872.—"On the relation of Nerves to Pigment and other Cells or Elementary Parts," by Dr. Lionel S. Beale, F.R.S. After alluding to the tendency of opinion in these days to favour the conclusion that the finest branches of nerve fibres come into structural relation with the active elements of other tissues, Dr. Beale affirmed his opinion that, whatever may be the influence produced by the nerves upon the structure, he does not think it depends upon continuity of substance between the nerve and the tissue affected.—"Report on Slides of Insect Scales," sent to the Royal Microscopical Society by the Chevalier de Cerbacq, examined by Henry J. Slack.—"On the Structure of the Stems of the Arborescent *Lycopodiaceæ* of the Coal Measures," by W. Caruthers, F.R.S.—"On a Leaf-Bearing Branch of a Species of *Lepidodendron*." These papers contain the results of an examination of a series of specimens from Mr. John Butterworth, of Shaw, near Oldham.—"On Bog Mosses," by Dr. R. Braithwaite, F.R.S., part iii., Monograph of the European species. This paper includes an enumeration of species, and full description of *Sphagnum cymbifolium*, the first in the series.—"The advancing powers of Microscopic Definition," by Dr. Royston Piggott. This is a further contribution to the vexed question of beaded scales, and may be taken as a summary of Dr. Royston Piggott's views, of which the first portion appears in the present number of the journal.—"Microscopical Object-glasses and their Power," by Edwin Bicknell; "Remarks on a Tolles' Immersion, $\frac{1}{15}$," by Edwin Bicknell; "Maltwood's Finder Supplemented," by W. K. Bridgman. This latter communication offers a plan by means of which two correspondents may bring their "Maltwoods" into relation with each other, supposing that their indications do not coincide.—"On a new Micro-telescope," by Prof. R. H. Ward, reprinted from the "American Naturalist." This number of the journal is illustrated by four plates.

The Journal of Botany for February is ornamented by a very good portrait of the late editor, Dr. Berthold Seemann. The original articles are fewer than usual, including only the conclu-

sion of Mr. J. G. Baker's paper on the Botany of the Lizard Peninsula, and a case of poisoning by the seeds of *Macrozamia spiralis*, by Dr. George Bennett. There are, however, a good many interesting short notes and several valuable reprints, including Dr. W. R. McNab's Histological Notes, read before the Botanical Society of Edinburgh; a list of new species of phanerogamous plants published in Great Britain in the year 1871 in the *Annals and Magazine of Natural History*, *Botanical Magazine*, *Floral Magazine*, *Gardeners' Chronicle*, *Hooker's Icones Plantarum*, *Journal of Botany*, *Journal of the Linnean Society*, and *Refugium Botanicum*; and Canon Kingsley's admirable address to the Winchester and Hampshire Scientific and Literary Society, on Bio-Geology.

SOCIETIES AND ACADEMIES

LONDON

Geological Society, February 21.—Prof. Ramsay, F.R.S., vice-president, in the chair. The following communication was read:—"Migrations of the Graptolites." By Prof. H. Alleyne Nicholson, M.D. The author commenced by stating that the occurrence of the same species of marine animals in deposits in different areas is now generally regarded as evidence that such deposits are not strictly contemporaneous, but rather that a migration from one area to another has taken place; this migration he thought would probably in many cases be accompanied by modification. Applying these principles to the Graptolites, he endeavoured to show in what directions their migrations may have taken place. He excluded from the family Graptolitiidæ the genera *Dictyonema*, *Dendrograpsus*, *Callograpsus*, and *Pillograpsus*, and stated that the family as thus limited extended from Upper Cambrian to Upper Silurian times. The earliest known Graptolites were those of the Skiddaw Slates, which he thought would prove to belong to the Upper Cambrian series. The Skiddaw area he considered to extend into Canada, where the Quebec group belongs to it. Genera of Graptolites belonging to this area are represented in Australia, and this the author regarded as indicative of migration, but in which direction was uncertain. Having discussed the forms of Graptolites characteristic of the deposits in the Skiddaw-Quebec area, the author proceeded to indicate the mode in which the family is represented in the areas of deposition of the great Silurian series, namely, the Llandeilo areas of Wales and Scotland, the Coniston area of the North of England, the Gala area of South Scotland, the Hudson-River area of North America, and the Saxon and Bohemian areas, giving under each of these heads a list of species, with indications of their probable derivation. Mr. Etheridge commented on the importance of Dr. Nicholson's paper, and on the difficulties attending the study of the Graptolitiidæ. The migration of these organisms appeared to him to be very difficult to establish, especially in connection with their extension both eastwards and westwards. Mr. Hughes believed that if we could discover the original of any species, we should see a small variety appearing among a number of forms not very different from it, and from which it had been derived; but when the variety had prevailed, so as to be the dominant form, we were far on in the history of the species; that it was a great assumption to fix upon any bed we now know as representing the original source of any group; that we know too little about the chronological order of the geological divisions referred to to reason with any safety on the migration of Graptolites from one era to another; that the term *Lower Llandeilo*, for instance, was very unsatisfactory as used in the paper; there was nothing lower than the Llandeilo Flags at Llandeilo; and where older beds occurred in Scotland and elsewhere, it was not at all clear that the equivalent of the Llandeilo Flags was present at all. He differed also altogether from the author as to the position of the Dufton Shales, and criticised the views of the author as to the range of some species. He thought that M. Barrande's theory of the colonies was borne out by the study of the Graptolites, but that we had not sufficient data to speculate as to the areas in which they made their first appearance, or the order of their geographical distribution. Prof. Duncan observed that at the present time there was, among other forms, quite as great a range for species as that of the Graptolites pointed out by the author. Having looked through all the drawings of Graptolites that he could meet with, he had found none whatever that were accurate; and he had moreover never in any specimens discovered such cups or *calices* between the

serrations as were always attributed to these organisms. From all he had seen he was led to the conclusion that the projections on the Graptolites bore the same relation to the central stem as those of some of the Actinozoa. These latter also, like the Graptolites, seemed to prefer a muddy sea. Professor Duncan also suggested that the Graptolites were really the remains of the filiform polypiferous parts of floating Hydrozoa. Prof. Morris regarded the paper as mainly suggestive. It was on all hands agreed that there were in Britain two principal zones in which graptolitic life was most abundant; and the same held good in America. Both these seemed to be homotaxially related. M. Barrande had long since pointed out the probable emigration of many of the Bohemian species from the British area; and there could be no doubt of there being many species common to Europe, America, and Australia. This afforded strong evidence in favour of some such theory as that of migration. He cautioned observers as to taking careful notice of the manner in which Graptolites are presented in their matrix; for when seen from three different points of view, they exhibited such differences that three species might be made from one form of organism. Mr. Gwyn Jeffreys mentioned the wide distribution of marine Hydrozoa by means of winds and currents, as illustrative of the history of Graptolites, the dispersion of which might have arisen from similar cause, and not from migration. Mr. Prestwich commented on the uncertainty of our knowledge with regard to Graptolites, and consequently regarded speculation on the subject of their migration as premature. He instanced *Cardita planicostata*, which was formerly regarded as having originated in the Paris basin and come thence into England, but which had since been found in far earlier beds in Britain; so that the presumed course of its migration has been reversed. Mr. Hicks remarked that the rocks referred by the author to the Upper Cambrian were in reality the lowest of the Silurian series, and that the Graptolitidæ were exclusively a Silurian family. Mr. Hopkinson also made some remarks both on the distinction of different species of Graptolites and on their distribution. He regarded the Quebec area as that in which these forms had originated. The Chairman commented on the great want of accord among those who had studied Graptolites, not only with regard to their structure, but to their distribution in different horizons. He thought that the suggestion of the author, as to modification of form during migration having taken place, seemed to throw some light on the subject. He could not regard two districts now only separated by the Solway Firth as constituting two geographical areas so distinct that the occurrence of the same species in both could with propriety be held to be due to migration. The phenomena in the other cases seemed to him quite as much in accordance with distribution from some common centre as with migration along any line connecting two spots where Graptolites are now found. He thought that the recurrence of these forms on different horizons in Cumberland was to be accounted for by the fact that most of the rocks which intervened between the shales containing these organisms were merely sub-aërial volcanic beds, on which, after submergence, these muddy shales had been deposited.

Entomological Society, February 19.—Prof. J. O. Westwood, president, in the chair.—Drs. Ransome and Livett, and Messrs. Rothera and Jenner, were elected subscribers to the society.—Mr. F. Smith made some observations respecting the occurrence of two pupæ in one large common cocoon of *Bombix mori* from China. The examples had been found amongst silk-waste in a London warehouse, and this waste had been attacked by mice, which fed upon the dead chrysalides. He further remarked that, occasionally, two or more swarms of wasps united in building a common nest, and also that broods of different species of wasps could be induced to act in concert, the result being that when these wasps used different building materials, a parti-coloured nest was produced.—Mr. Butler exhibited drawings of a large grub, apparently the larva of some species of Ichneumonidæ, which had emerged from the larva of the common "buff-tip" moth (*Pygæa bucephala*), which it nearly equalled in size.—Dr. Buchanan White communicated extracts from his note-book respecting the habits of a species of ant as observed at Capri in 1866, confirming Mr. Moggridge's recent observations as to the grain-storing habits of these ants. Mr. Horne had observed a similar habit in certain Indian ants.—Prof. Westwood exhibited type-specimens and drawings of the animal from Madagascar, upon which Latreille founded his genus *Prosopestoma* as pertaining to the Crustacea; and made some remarks thereon connected with the assertion of a French entomologist,

Dr. Joly, that these creatures, and "le Binocle" of the neighbourhood of Paris, described by Geoffroy, are in reality the earlier stages of species of *Ephemeridæ*. Prof. Westwood was scarcely able to believe that this association was founded upon facts, though he was not disposed to express any opinion as to their actual affinities.—Mr. Müller read some remarks on the habits of certain gall-producing saw-flies of the willow, which are said to avoid those portions of the trees that overhang water, and suggested a practical application of the theory to save choice fruit-trees from the attacks of insects, by surrounding them with glass at the base, it being well known that glass is often mistaken for water by aquatic insects.

Anthropological Institute, February 19.—Sir John Lubbock, Bart., F.R.S., president, in the chair. Messrs. C. Bowley, R. J. Nunn, Edward Harris, J. E. Price, and J. P. Steele, were elected members. Mr. H. H. Howorth read a paper entitled "Strictures on Darwinism. Part I: Fertility and Sterility." After a brief statement of the evolutionary theory of Mr. Darwin, which was the old-fashioned theory of Malthus pressed to its utmost limits, viz., that in the struggle for existence which is always going on everywhere the weak elements go to the wall and are gradually eliminated whilst the strong survive, the author stated his intention in the present paper to confine his examination to one case in its concrete form. He criticised the argument that physical vigour, health, and strength had, in the struggle for existence, a tendency to prevail to the expulsion and eradication of weakness and debility, and he held that the reverse was the truth as regarded the large majority of cases, and the paradox was the same in substance as that maintained by Mr. Doubleday in his true Law of Population. It was shown that the gardener, who was an empirical philosopher, in his experience of cultivated plants, was fully aware of the truth of the principle advocated by the author, and a great number of instances were cited in illustration. Passing from the vegetable to the animal world, he showed how stock-keepers and breeders had accumulated much sound experience, which corroborated that of the gardener in regard to plants. It was a golden rule with them to keep their animals weak and in a state of depletion if they wished them to breed freely. Pure breeds were seldom very fruitful, they were notoriously pampered and highly fed; but when turned into coarse and scanty pastures their rounded sides became denuded of flesh and the animals bred more freely. The same principle obtained with man. It was in the crowded alleys and among half-starved or ill-fed populations that fertility was greatest. The author had high authority for stating that as a general rule convalescent persons—those recovering from prostrating diseases—were very fertile. On the other hand, with the rich and well-to-do, especially among families whose position for some generations had been prosperous, comparative sterility prevailed. Illustrations of that dictum were drawn from the writings of physiologists, from statistics, from the genealogical histories of the nobility and gentry, and were sustained by lengthened argument. National and ethnic tendencies to fertility or sterility were surveyed by the author, e.g., among the Irish, various Black and savage peoples, Americans aboriginal and modern, the Slaves, and various Russian tribes. In conclusion, the arguments were thus summarised: that sterility is induced by vigorous health and by a plentiful supply of the necessaries of life, while fertility is induced by want and debility, and that this law acts directly against Mr. Darwin's theory, inasmuch as it is constantly recruiting the weak and decrepit at the expense of the hearty and vigorous, and is thus persistently working against the favourite scheme of Mr. Darwin, that in the struggle for existence the weak are always being eliminated by the strong.

MANCHESTER

Literary and Philosophical Society, February 20.—Mr. E. W. Binney, F.R.S., president, in the chair. The president said that at the meeting of the society on the 9th of January last he alluded to the probability of the genus *Zygopteris* being found in the limestone nodules of the Foot Mine near Oldham. He had lately had an opportunity of inspecting the collection of Mr. James Whitaker of Watershedding, and he there recognised a specimen of the *Zygopteris Lacatitii* of Oldham. There was a difference between the Autun and Oldham specimens; for whilst the vascular bundles in the petiole of the former were shaped like a double anchor, in the latter they came nearly together and formed a circle; but he thought this difference scarcely sufficient to form another species.—Dr. J. P. Joule, F.R.S., described some experiments he had been making

on the polarisation by frictional electricity of platina plates, either immersed in water or rolled together with wet silk intervening. The charge was only diminished one half after an interval of an hour and a quarter. It was ascertained both in quality and quantity by transmitting it through a delicate galvanometer. He suggested that a condenser on this principle might be useful for the observation of atmospheric electricity.—“On an Electrical Corona resembling the Solar Corona,” by Prof. Osborne Reynolds.—“On the Electro-Dynamic effect, the induction of Statical Electricity causes in a moving body. The induction of the Sun a probable cause of Terrestrial Magnetism,” by Prof. Osborne Reynolds.

EDINBURGH

Royal Physical Society, February 28.—Dr. James M' Bain, president, in the chair. The following communications were read:—“On the Dentition of *Echinorhinus spinosus*,” by Prof. Duns. Dr. Duns has obtained two specimens of this rare shark in the Firth of Forth, one in 1868 and another in 1871. The former is in the Scottish Natural Museum, the latter in the Museum of the New College. The specimens noticed by Yarrell were referred to, and the form of the teeth of the 1868 example shown. The remarks of Agassiz were quoted on the resemblance of the teeth of *Echinorhinus* to those of his genus *Goniodus*. It was shown, that while in other specific features the specimen of 1871 resembles those of that got in 1868, it differs very widely in the form of the teeth.—“On Garnetiferous Limestone, Balmoral,” by Prof. Duns.—“On the Preservation of Compound Ascidiæ,” by Mr. C. W. Peach. Mr. Peach stated that when living at Cornwall he was much struck by the beauty of the compound ascidiæ, so abundant on rocks, &c., between tide-marks there, and that he was perfectly aware that the beauty of the colours and flower-like systems of these lovely objects was always lost, whether they were preserved in spirits or any other fluid. He thought of Canada balsam—the great difficulty of contending with wet objects suggested itself. He, however, tried, and so far succeeded, by laying them on glass, (when detached from the rocks), after squeezing out as much as possible of the moisture by first laying them in cotton or linen rag between sheets of blotting paper, changing these as often as required, and doing all as quickly as possible, after taking the object from the sea. Thus dried, they were placed on glass covered with warmed Canada balsam, and covered with another similarly prepared plate of glass, on which sufficient balsam was melted to cover up completely the specimen. It is then allowed to cool under slight pressure, the superfluous balsam scraped off, and sealing-wax put round the edges to form a cell, and thus they were preserved. He exhibited several specimens—some preserved twenty-five years ago—of *Leptoclinium*, *Botryllus*, *Didemnum*, *Paracidra*, &c., in a beautifully preserved condition.—Mr. Peach exhibited a number of fossil plants he had collected last summer from the coal-fields of Edinburgh, Slamannan, Bathgate, and Devonside near Tillicoultry.—“On the Phosphate Deposits of South Carolina,” by Prof. Pratt, Charleston, U.S.—Mr. John Hunter exhibited a series of fossils from the same region.

DUBLIN

Royal Irish Academy, February 12.—Rev. J. H. Jellett, president, in the chair. Dr. Eugene A. Conwell read a paper on the identification of the ancient Cemetery at Loughcrew, Co. Meath.—Dr. W. Frazer read notes on several finds of silver coins lately made in Ireland.

PARIS

Academy of Sciences, February 19.—The dispute concerning the accuracy of the results published by the Paris Observatory was carried on rather briskly by MM. Serret, Le Verrier and Delaunay.—A note by M. Zeuthen on the determination of the characteristics of the elementary systems of cubics was presented, with remarks by M. Chasles.—M. Ciotti claimed the originality of his researches on the employment of vibratory elastic laminae as a means of propulsion.—M. Delaunay communicated some remarks on the experiments of M. Wolf, on the reflecting power of silvered glass mirrors.—Numerous reports on the aurora of February 4 were presented, and also a note by Marshal Vaillant on the phenomena which give rise to auroras, a note by M. H. Tarry on the origin of polar auroras, and a memoir by M. Silbermann on the facts from which we may deduce a theory of aurora borealis and australis founded on the

existence of atmospheric tides, and the indication, by means of auroras, of the existence of flights of meteors in proximity to the terrestrial globe.—Marshal Vaillant regarded auroras as produced by the reflection from the surface of the terrestrial atmosphere of the light produced by electrical or magnetic currents. M. Tarry ascribes to these phenomena a cosmical origin.—A note by M. J. L. Soret on the induction currents produced in the coils of an electro-magnet when a metallic mass is set in rotation between its poles was read.—M. H. Sainte-Claire Deville presented a note by M. E. Branley on the measurement of the polarisation in a voltaic element.—A note by M. Respighi on the spectral analysis of the zodiacal light was read, in which the author detailed some interesting observations on the spectral phenomena presented by the zodiacal light and auroras tending to indicate the identity of origin of the two phenomena.—M. Delaunay presented a note by MM. Loewy and Tisserand on the search for the last planet (99) Dike.—MM. J. Pierre and E. Puchot communicated some facts in the history of propyllic alcohol, relating chiefly to the behaviour under distillation of the so-called monohydrate of that body.—M. G. Tissandier communicated a note on a new mode of producing anhydrous protoxide of iron by the action of carbonic acid upon iron heated to redness. The author describes the properties of the oxide thus prepared.—A memoir was read by M. E. Duclaux on iodide of starch, which he does not regard as a regular chemical compound.—A note by M. Blondlot on the alcoholic fermentation of sugar of milk was read. The author described the fermentation of milk when agitated from time to time, by means of a ferment apparently proper to it, and stated that this fermentation was continued by the addition of sugar of milk or glucose to the fluid after the cessation of the first fermentation. He obtained alcohol by the distillation of the fermented product, and regarded his results as favourable to the theory of fermentation of M. Pasteur.—M. Pasteur criticised the recent communications of M. Fremy on the subject of fermentation, discussing his experiments *seriatim*, and indicating objections to them.—M. S. de Luca presented some investigations upon the composition of the gases which are evolved from the fumaroles of the solfatara of Pozzuoli, upon which M. Boussingault made some remarks.—The processes for the preservation of wines by the application of heat formed the subject of notes by M. A. de Vergnette-Lamotte and by Dr. Bart.—M. E. Alix noticed the existence of the depressor nerve in the hippopotamus, and stated that it resembles that of the horse in arrangement, but is thinner coinciding with the small size of the primitive carotid.—M. A. Béchamp presented some observations on a recent note by M. de Segnes upon microzymes.

February 26.—The following mathematical papers were read:—An exposition of a geometric theory of the curvature of surfaces, by M. A. Mannheim, presented by M. Serret; a note on some relations between the angular quantities of convex polyhedra, by M. L. Lalanne; and a determination of the characteristics of the elementary systems of cubics, by M. Zeuthen, communicated by M. Chasles.—M. de Saint Venant read a memoir on the hydrodynamics of streams.—M. Phillips presented a note on the governing spiral of chronometers, and M. de Pambour a second paper on the theory of hydraulic wheels, relating to the reaction wheel.—A letter from Father Secchi on the aurora of February 4, and on some new results of spectrum analysis, was read, containing a description of the appearances observed at Rome, with a notice of the phenomena presented by spectrum analysis, and a discussion of the supposed relation between auroras and the solar protuberances, which the author is not inclined to accept. In a postscript M. Secchi calls attention to the appearance of remarkably distinct bands and lines upon the planet Jupiter.—A communication was read from Prof. Piazzi Smyth, on the brilliant yellow band in the spectrum of auroras, which he stated to be of constant occurrence, and to fall always upon the line 5579.—M. A. Laussedat also presented a memoir on the aurora of February 4, and M. C. Sainte-Claire Deville a continuation of M. J. Silbermann's memoir on the theory of auroras, and on the indication by their means of the existence of flights of asteroids in proximity to the earth.—M. C. Sainte-Claire Deville also read a note on the probable application of quadruple, dodecuple, and tridodecuple symmetries, or of periods of 90, 30, and 10 days, to the mean returns of the electrical phenomena of the atmosphere, such as storms and auroras.—M. E. Becquerel presented a memoir by M. G. Planté, on the employment of secondary currents to accumulate or transform the effects of the galvanic battery, containing the description of improvements in

the arrangements previously suggested by him.—M. H. Sainte-Claire Deville communicated a note by M. J. M. Gaugain on the electromotor forces developed by the contact of metals with inactive fluids, containing the discussion of results obtained with plates of platinum in distilled water.—The question of priority in the invention of the method of preserving wines by the action of heat was treated at some length by M. Balard, to whom M. Thenard replied.—M. Tellier forwarded a further communication on his system of producing cold by the evaporation of ether, assisted by compressed air.—M. Wurtz presented a note by M. E. Reboul on two new isomers of bromide of propylene.—M. J. Personne read a note on iodide of starch, in answer to one presented by M. Duclaux at the last meeting. M. Personne claims to have arrived six years ago at the conclusion that the so-called iodide of starch is not a chemical compound.—A note by M. Marey, on the determination of the inclinations of the plane of the wing at different moments of its revolution was read.—M. C. Bernard presented a third note by M. P. Bert on the influence which changes in barometric pressure exert upon the phenomena of life, in which the author described the effects produced by exposing small animals to various degrees of atmospheric pressure. He has found that up to a pressure of two atmospheres sparrows die when the air in the receiver contains 25 per cent. of carbonic acid, but that above this limit and below a pressure of 25 centims., this law does not apply. In the former case the birds perish partly by the toxic effects of an excess of oxygen, and in the latter by a privation of oxygen.—M. C. Bernard also communicated a note by M. N. Gréhan on the respiration of fishes, containing a statement of the curious fact that fishes in respiration can avail themselves not only of the oxygen dissolved in the water, but also of that held by the red corpuscles of the blood of other animals when these are mixed with the water.—A note by MM. L. Labbé and G. Guyon on the combined action of morphine and chloroform, was also presented by M. C. Bernard. The authors state that a state of perfect anæsthesia may be produced and sustained for a long time without the usual danger, by administering a subcutaneous injection of hydrochlorate of morphine about a quarter of an hour before the exhibition of chloroform.—M. A. Béchamp read a paper "On the Essential Nature of the Organised Corpuscles of the Atmosphere, and on the part which belongs to them in the phenomena of Fermentation."—M. S. Meunier presented a note on the existence of bauxite in French Guiana.

VIENNA

Geological Institution, February 6.—Dr. Neumayr, "On the Jurassic Provinces of Europe." The author stated the different development of the Jurassic strata in three regions of Europe. To the Mediterranean province belong the Jurassic beds of Spain, and of the Alpine and Carpathian districts; secondly, the middle European province is formed by the Jurassic beds of England, France, and Northern Germany; while to the third, the Russian province, belong the Jurassic beds of Russia, as well as those of Spitzbergen and Greenland. The only really important diversity between the Jurassic strata of these provinces is founded, as he shows, on differences in the zoological characters of their faunas. Thus, for instance, the most prevalent peculiarity of the Mediterranean province is the presence of Ammonites of the two genera, *Phylloceras* (*Heterophylli*) and *Lytoceras* (*Fimbriati*), which abound in almost all members of the Jurassic formation in the Alps and Carpathians, while they are almost entirely wanting in the middle European province. The Russian province, on the contrary, is chiefly characterised by the absence of reef-forming coral and some other peculiarities. It is impossible to account for this difference by the supposition of land having separated the Jurassic seas of the different provinces. The fact that along the line of separation between the Mediterranean and middle European provinces, from the South of France to the Crimea, strata of both provinces approach very near, even to a few miles, excludes this supposition. The only possible mode of explanation the author finds in accepting in the Jurassic period climatic differences in the zones from north to south. The strict separation of both faunas along the said line may be explained, he thinks, by a great stream of warm water, which produced similar effects to the Gulf Stream in our time.—Dr. G. Pilar, "On the Tertiary deposits in the valley of the Culpa, in the environs of Glina, in Croatia." Very instructive sections have been denuded in these deposits by the Culpa river. The marine beds, as well as the Sarmatic and the Congeria beds are developed; all abound with fossils.

DIARY

THURSDAY, MARCH 7.

ROYAL SOCIETY, at 8.30.—On the Organisation of the Fossil Plants of the Coal Measures. III. Lycopodiaceæ, by Prof. W. C. Williamson, F.R.S.
 SOCIETY OF ANTIQUARIES, at 8.30.—Exhibition of a large collection of Photographs and Drawings of Irish Architectural Remains anterior to the 12th Century, made by the late Earl of Dunraven, F.S.A., with Remarks by Miss Stokes.
 CHEMICAL SOCIETY, at 8.
 LINNEAN SOCIETY, at 8.—Revision of the Genera and Species of Scilleæ: J. G. Baker.—*Andræcium* in *Cochlostema*: Dr. Masters.
 LONDON INSTITUTION, at 7.—A Vindication of our Monetary Standard, with an Exposition of its Internal Relations: J. A. Franklin.

FRIDAY, MARCH 8.

ROYAL COLLEGE OF SURGEONS, at 4.—On the Digestive Organs of the Vertebrata: Prof. Flower, F.R.S.
 ASTRONOMICAL SOCIETY, at 8.
 QUEKETT MICROSCOPICAL CLUB, at 8.
 ROYAL INSTITUTION, at 9.—On the Effect of certain Faults of Vision on Painting, with especial reference to Turner and Mulready: R. Liebreich.

SATURDAY, MARCH 9.

ROYAL INSTITUTION, at 3.—Demonology: M. D. Conway.

MONDAY, MARCH 11.

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.
 ROYAL COLLEGE OF SURGEONS, at 4.—On the Digestive Organs of the Vertebrata: Prof. Flower, F.R.S.

TUESDAY, MARCH 12.

PHOTOGRAPHIC SOCIETY, at 8.—Retouching, its Use and Abuse: Valentine Blanchard.
 ROYAL INSTITUTION, at 3.—On the Circulatory and Nervous Systems: Dr. Rutherford.

WEDNESDAY, MARCH 13.

ROYAL COLLEGE OF SURGEONS, at 4.—On the Digestive Organs of the Vertebrata: Prof. Flower, F.R.S.
 SOCIETY OF ARTS, at 8.—On the British Trade with France during the last Ten Years, in its relation to the General Trade of the United Kingdom: Leone Levi.

THURSDAY, MARCH 14.

ROYAL SOCIETY, at 8.30.
 SOCIETY OF ANTIQUARIES, at 8.30.
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ERRATA.—P. 341, first col., line 32, for "and should be changed," read "and should not be changed." P. 338, first col., line 3, for "J. Murray" read "Tinsley Brothers."

NOTICE

We beg leave to state that we decline to return rejected communications, and to this rule we can make no exception. Communications respecting Subscriptions or Advertisements must be addressed to the Publishers, NOT to the Editor.